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#### TSG/ESD/TEB-027/72 20 March 1972

Chief, Research & Engineering Division, TSG MEMORANDUM FOR: Chief, Engineering Support Division, TSG THROUGH Chief, Test & Evaluation Branch, ESD/TSG Acceptance Testing of the 1540-4 Light SUBJECT Table - Preproduction Model for DIA "Technical Requirements for the Produc-REFERENCES a. tion of the | Split-Format Light Table and Mount for Various Microstereoscopes" Document A-1747B, 12 August 1971 b.

#### 1. INTRODUCTION

The 1540-4 Light Table was first submitted to ESD/TEB for acceptance testing on 13 December 1971. Tests were stopped after one day because of operational failures of the motorized optics carriage. reworked the electrical system and the table was resubmitted for tests on 17 January 1972. Acceptance testing was completed on 15 February 1972 and the table released to DIA for operational suitability testing. At that time a verbal notification was given to TSG/RED and DIA that several specifications were not met by the contractor.

# 2. SUMMARY OF RESULTS

- 2.1 Based on the requirements listed in reference (a) the following discrepancies were found:
  - o It was not possible to achieve the minimum required illumination level with one of the two formats.
  - o The sources flicker at low illumination level.
  - o The optics carriage will not translate over the entire Y direction of the viewing surface.
  - o The viewing surfaces are not parallel within permissible tolerance with the microstereoscope mount.

Declass review by NGA/DoD

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- o The focusing mechanism would not hold its focused position in every case.
- o Three minor errors were found in the instruction manual.
- 2.2 Reference (b) is a list of specifications pertaining to the 1540-4 Table's optics carriage motorized transport requirements. Based on these requirements the following discrepancies were found:
  - o Minimum Operating Speed At the minimum control setting, the transport speed varied from 0.0018 to 0.0053 in/sec. This was outside the permissible range of 0.0045 to 0.0055 in/sec.
  - o Time to attain set speed Requirement was for 1.0 second or less. In general the longest times to attain a set speed were found at the slowest transport speed setting. The observed time varied from 0.42 to 4.86 seconds. (If the most favorable possible experimental errors are applied to the data the actual minimum could conceivably have been 0.31 to 3.81.)
  - o Time from release of control to stop Requirement was for 0.1 second or less. Time required ranged from < 0.02 to 0.44 seconds. (Possibly 0.25 secs maximum, allowing for experimental errors.)
  - o The average speed of the X travel at any one setting was not equal to Y travel within the prescribed 10 percent. The best case shown was 16 percent. The worst case was a difference of 189 percent change.
  - Uniformity of incremental velocities Requirement was that incremental velocity from one 0.2 second period to the next should not change by more than + 5 percent. Several cases were found where the percent change was greater than 50 percent. This requirement was never met in any test run made at any speed setting. When considering possible measurement error, however, this requirement was met in 28 out of 64 tests.

#### 3. TEST DETAILS

3.1 The \_\_\_\_\_1540-4 table was examined to determine conformance with specifications listed in reference (a). Listed below are those specifications which were not met along with the discrepancy.

o Section 3.1.1.1 Illumination Level

Specification ... "The minimum level of each of the sources shall be 200 foot lamberts."...

Observed - Left format - Minimum value was 250 foot lamberts.

o Section 3.1.1.4 Flicker

Specification ... "such a level as not to be visibly objectionable to the sponsor's operators at any light intensity level" ...

Observed - There is objectionable flicker when the illumination level is set for 400 foot lamberts.

o Section 3.5.1.2 Translation

Specification ... "translation in the Y direction shall be adequate to cover the full 15 inch depth of the glass viewing surface"...

Observed - Length of tracks and obstructions caused by electrical cables hitting back members of the table prevent the microstereoscope mount from translating over 1 7/8 inches of the illuminated surface in the Y direction. Because of this condition future damage to electrical cables is highly possible.

o Specification ... "and the viewing surfaces be parallel within 0.015 inches over the entire translation field of the microstereoscope mount"...

Observed - Between two specific points, one on each glass surface, a difference of 0.016 inches was measured.

o Section 3.5.1.5 Locks

Specification ... "The focusing mechanism shall be self locking"...

Observed - The focusing mechanism was tested with the bottom side of the microstereoscope pod approximately 4 7/8, 7, and 9 inches above the glass surface. Using a dial indicator placed between the pod and table surface, the mechanism was focused to simulated "focus" positions and the focus knob released. Ten minutes later the dial indicator was read to determine drift.

Six tests were made at each height, three focusing "up" and three focusing "down." Except for two cases there was no drift. At the 4 7/8 inch height the pod drifted down 0.002 inch in one test and 0.005 inch in another. All tests were conducted in our 1st floor test area where ambient floor vibration is minimal.

o Section 4.1 Instruction Manual

Specification ... "describing proper installation, operation, and maintenance"....

Observed - Paragraph 2.6.2(i) The word "counterclock-wise" should be changed to "clockwise."

Paragraph 2.6.2(k) The word "clockwise" should be changed to "counterclockwise."

Paragraph 2.6.3(i) The word "clockwise" should be changed to "counterclockwise.:

- 3.2 The table was examined to determine conformance to 14 specifications for the optics carriage listed in reference (b). The magnitude of the time and displacement increments associated with the specifications for (1) time to attain set speed, (2) time to stop, and (3) increment motion (specifications 3-6) is extremely small. Therefore, slight errors in measuring these characteristics cause large errors in the results. Such errors could have occurred when reading time and displacement data from motion picture test films. For this reason, experiment error tolerances have been applied to the observed data resulting in the following three values for each computation:
  - o Nominal Value Computed using test data as read from the film.
  - o Minimum Value Tolerances were provided for possible film reading errors. Data computations were made to give the "benefit of the doubt" to the contractor. Using minimum values the least failures of the equipment to meet specifications are shown.
  - o Maximum Value Maximum values were computed when film reading errors were assumed opposite those which give the minimum value. The results are the worst of possible cases.

The following caveat is made regarding data provided for specifications 3-6: It is likely that nominal values given

(tables 1-5) are closer to actual equipment performance than minimum or maximum values. The minimum values, however, are less contestable should the validity of the test data be questioned.

o Specification 1. "X-Y minimum starting and operating speed -0.005 in/sec + 10%". (Range 0.0045 to 0.0055 in/sec.)

Remarks - Average operating speed was calculated using total displacement of the optics carriage in a period of approximately 7 seconds. The word "starting" in the specification was ignored because of the obvious reason that at start time the speed is zero. Time and displacement for the first second was not used in data computations. The motorized drive was set for minimum speed and not changed for 31 tests.

Results - Average operating speeds varied from 0.0018 to 0.0053 in/sec. In 31 tests the specification was met 18 times. Test data was not satisfactory on test No. 17. (See tables 1 and 2.)

- o <u>Specification 2</u>. "X-Y maximum speed > 0.250 in/sec."

  Results Specification was met (see table 5).
- o Specification 3. "Time to attain set speed 0.5 to 1.0 sec or less."

Remarks - The criterion used was that time when the first incremental velocity (averaged over approximately 0.2 second periods) was equal or higher than the average operating speed.

Results - From 32 tests, at minimum speed, 15 nominal values and 11 minimum values did not meet the specification (see tables 1 and 2 and figure 1).

The transport speed was then increased to approximately 0.020 in/sec and 16 tests were made. Using nominal values the specification was not met 5 times. With minimum values it was not met 5 times (see table 3).

Sixteen tests were made with the transport speed set for approximately 0.100 in/sec. Using nominal values the specification was not met 1 time. With minimum values it met the specification in all cases (see table 4).

Two tests were made with the transport speed set for maximum speed. Specification 3 was met in both cases (see table 5).

o Specification 4. "Time from release of control to stop 0.1 sec or less."

### Results

No.	of	Tir	nes	Specif	fication	on
Wa	as r	not	met			

			•
Speed Setting	Number of Tests	Nominal Value	Minimum Value
Minimum	31	18	11
0.020 in/sec	z 15	7	1
0.100 in/se	c 16	1	0
Maximum	2	0	0

o Specification 5. "Speed of X travel of bridge equal to speed of Y travel of bridge within 10%."

Remarks - At each speed setting the maximum X or Y operating speed obtained (usually from 4 test runs) was compared with the minimum X or Y speed (e.g., max X vs. min Y or max Y vs. min X) and the percent difference was calculated. Two conditions were compared at each speed setting:

(1) X speed vs. Y speed, table horizontal

(2) X speed vs. Y speed, table tilted

# Results - Did not meet specification:

Minimum	Setting	Horizontal	58%	difference
		Tilted -	189%	· · · · · · · · · · · · · · · · · · ·
0.020	in/sec	Horizontal	16%	**
•		Tilted	17%	
0.100	in/sec	Horizontal	16%	11
•		Tilted	16%	11

o Specification 6. "For any setting of the speed control, that time for an increment equivalent to 0.2 seconds of motion at that nominal speed setting shall not vary from the time for the

CONTRACTOR

Remarks - The number of times that the velocity change exceeded 5% was counted for each test run and compared to the times possible. The count started for each test at the nominal time when the transport was at operating speed. This time was determined by using data determined in testing Specification 3.

### Results

No. of Times Specification was not met

Speed Setting	Number of Tests	Nominal Value	Minimum Value
Minimum	31	31	19
0.020 in/sec	15	15	. 3
0.100 in/sec	16	16	. 6
Maximum	2	2	. 0

Specifications 7-11. All requirements were met.

Specification 12. This specification seems to be in conflict with specification numbers 1 and 6.

Specifications 13-14. All requirements were met.

 Toch Engineer
Test Engineer
TEB/ESD
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Dictribution										
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1 - RED

1 - RED/SA (thru: Ch/RED)

1 - DI-8/Tech & Dev. Br.

2 - TEB

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TABLE I

OPTICS CARRINGE MOTORIZED TRANSPORT

Minimum Transport Speed Setting MacCarrings in center of Table \*\*

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7.25 I D	PRECONDITION		1 20 1 1 2 2	CARRIAGE POSITION	OPERATING	MEETS REQ.	TIME 7	ה הדוחות	SET SPEE	MEETS REQ.	TIME T	o stop	MEETS REQ.	SPEED X TRAVEL EQUAL Y TRAVEL	MEETS.			REVIOUS M		MEE'S REQ
10.		(A)	対抗なか	2.00	SPEED m./sec.	SPEC I		ECONDS NOMINAL		SPEC 3?	- SECO			WITHIN 10 % (Using an average of the OPERATING SPEEDS)	SPEC 5 ?	1 1			ED±5%	
1	1091	108+	Horizontal	Center XYY	0.0049	Yes	6.31	0-72-		Yes	1 < 0.02	0.02	res	Max X speed Charles 0.0049	Nα	. 39	10	1	37	Ye:
2	left.	right	ing aparation.	2. 19 8 6	0.0042	No	0.65	1.19	1.91	· Yes	40.03	< 0.03	Yes	Min.Y speed (horiz.) 0.0031	4.0	39	9	37.	3.8	No
3	right	right.	A 1000	" A March	0.0046	Yes .	0.45	0.45		Yes	20.02	0.02	Yes	* # 58 periont difference **	p . a .	<i>4</i> 0	2	39	40	W5
4	right	109.7	Projection	1.00	.0.0047	Yes	1.19	1:75	-	No	>0.07	0-12	Yes	「情味計画調査」、連合したりによる。	100 Mg	. 40	0.	30	- 39	Yes
5	1: 1057	109+	+,1+ed	11 11	0.0052	Yes	0.43	0.60	1.31	Yes	76-02	0.06	Yes	Max X speed (+1/ted) 0.0052	No	47	2	.37	45	No
6	106+	right	14 Min 30 Ca	0.5	0.0043	No	0.78	0-78	3.41	Yes	< 0.02	< 0.02	Yes	(Min Y speed (+, 1+ed) 0.0018	100	41	2	35	40	No.
7	Yight.	right	1 4 34 6 6 3	1 300	0.0047	Yes	0.47	0.47		Yes	< 0.03	0.03	Yes	*** 189 percent difference **	A	38	4	2.5	37	No
8	right	104+		1.05	0-0049	Yes	1.20	2.89	3.46	No	>0.11	0.33	No	5年3年では2年では1年1日に3日で	11.1	26.	7	. 1.9	29	N/a
1.9	to rear	to year	horizontal	10 17	0.0052	Yes	0.51	0-51	1.35	Yes	>0.16	0.29	No	Sunta, will fell the Sam	91.0	37	. 0	. 77	35	Ye:
10	to rear	to Front	0.	"	0.0031	No	0-48	11.84	4.90	Yes	>0.19	0.44	No	·罗·斯克斯 子宫联系(4)10)10)	13.5	28		2.3	27	res
"	to Front	to Front	,,	in :	0.0051	Yes	0.48	0.48	3.09	Yes	<0.05	0.05	Yes	THE SHOP OF THE STATE OF		40	0 .	2.7	39	Y2,2.
12	to Front	to YCAY	A. A. 1850	1 115 22	0.0042	No.	1.99	2.77	5.34	110	< 0.05	0.05	Tes	【基础的图片的图片,2014年)。		31	0	15	. 30	Y2
13	to rear	to YEAY	tilted	1,1	0.0050	Yes	0.63	0.63	4.00	Yes	> 0.17	0.40	No	THE STATE OF THE PARTY AND A STATE	B. 1. 1. 1	. 43	0	. 28	. 42	· Ye.
19	To Year	to Front	1.00	37.	0.0018	. No .	2.37	4-86	5.90	No	0.10	0.16	res	· (1964年1977年) 美国国际联系统	1.50	17	2	$\sim 0$	15	No
25	to Front	to Front	10 10 W	11.3	0.0049	Yes	0 - 27	0.63	5.57	Yes !	20.05	0-05	Yes	A \$ 18 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1.5	40	2	24	37	Nen
1 13	to Front	to Year	30,00,000	M. British	0.0023	No	3-81	4-30	5-20	No.	> 0:15	0 39	No	Business to the second of the	12 13	21	5.00	15	20	. N:

TABLE Z
OPTICS CARRIAGE MOTORIZED TRANSFORT
MINIMUM Transport Speed Setting

		3 (*1.24k), 148)	eldpermed Fig. 8	1997.186.46.350	<u> </u>	44 4 5	354 PH	4 5 6	MINIMO	im livie	n spox i				<b>《新兴·西斯·</b> 斯	* * CS	cia 2 c			- F	
	PRECONDITION			CARRIAGE		MEETS	1 E	7.73	14 1	MEETS	855	773	MEETS	Santa Em		MEETS		IS - INCR			MEETS
J.D.	DIVECTION	DIRECTION	ORIENTATION	POSITION	OPERATING	REQ	TIME T	O ATTAIN	SET SPEE	REQ.	TIME T	0 STOP	REQ	SPEED X TRAV	EL EQUAL Y YR	AVEL REQ.	1/57 70 V	ARY FROM	FREVIOUS N	MARE 55%	REQ
No.			图 如果是		SPEED	SPECIL	100000	ECONDS		SPEC 3?	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				(Using an ave			TIME			
-			34 - 3 - 1 - 1 - 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2		m./sec	- 1/-	WINIWA	NOWINGE	MUXIMUM	(MIN. VALUE)	MINIMUM	NOM IN AL	(MIN. VALUE	of the OPERA	TING SPEEDS)		POSSIBLE	MUMINUM	NemINAL	MAXIMUM	MIN. YMLU
17	105+	Icft		Left X Centr		TEST	WAS 1	107 5	ATISEN	CTORY	**	x x	* *	<b>/</b> - <b>k</b> -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- *	*	/ *	-*	-*	→.
18	1087	right	3 11 15	2. H 5.25	0.0041	No :	1.26	2-11	3.74	No.	> 0.16	0.18	No	Max X speed	(horiz.) 0.00	51 NO	38	2	29	37	Nο
19	right	right	19.44 A 19	11	0.0047	res	0.42.	0.42	6.86	Yes	> 0 - 07	0.31	Yes	Min Y seced	(horiz.) 0.00	3/	40	1	34	38	Νc
20	right	104+	F 1157 5 4 7	" " " " " " " " " " " " " " " " " " "	0.0046	Yes	1.87	1.87	5.04	No	70.09	0.21	Yes	*** 64 PC	reent differer	10 **	39.		.< ق	37	Yes
21	109+	1087	14. 18 14. 18 1	Right X centy	0.0051	Yes .	0.44	0.44	2.50.	Yes	20.14	0.25	No	Part/4.2 14	of the long of the	a a trans	46	3	. 39	4.5	No
22	1ef+	right	15 110000	71	0.0041	N۵	0-78	2.27	3.75	Yes	40.03	< 0.03	Yes	30.587 1. 775	AD DE THEY'RE	978, May 98	36	2	3 :	3.5	No
:23	right	right	17 mm 23	"	0.0047	Yes	0-49	0.49	3.24		20.07	0.12	Yes	Kaladarung in	प्रकार में दिया	30 a. 20	42	100	2.8	41	No
211	right	1087	A Copper of	11 d . p 41	0.0049	Yes	1.31	2.04	3-52		40.04	0.04	Yes	79.354 per	40 (3 B) (A 4 A	127 1245	37	177-7	3.0	36	Nο
2.5	to YESY !	to rear		Left X BackY	0.0050	Yes	0.63	0.82	-	· Yes	70-21	0.24	No	Brank de 27	58/35/35/4	72 Table	142	0.	31	41	Yes
26	to year	to Front	10 1 1 N	5 Jun 19	0.0031	No	0.44	14.10	4.47		·	40.04	Yes	22 A 7 1 1 1 1 1	Mark Lorden	[N 9/8]	2.6		2.7	2.5	Ns
27	to Front	to Trant	127	W 10	0.0050	Yes	0.60	0.60	3.90			0.11		8000000	64		47	2	- 36 -	44	No
28	to Front	to rear	111111111111111111111111111111111111111	S . 10 15 15	0.0035	No.	2.43	2.99	3.92			40.03		Market 1	13. 335 33	1	30	777	24	29	No
29	to rear	to rear	11	Left X Front Y	0.0052	Yes	0.40		_		20.05		Yes	350 Asia - 100 A	4 (t. n. 1 ) (\$2 Jet		45	-	36	144	Yes
.30	to rear	to Front	No Miles	- 1. Ali 1. Ali	0.0035	No	2:13	3.06	4-17		>0.07	0.23		FE . 44459 N	13/50/14/14/	77.	2.5	-	21	24	· No
31	to Front	to Front	n	11 11	0.0053	Yes	0.43	0.43	2.65	7		0.27	No:	376 (28 53)	and the second	Now A sec	138	0	7-28	37	· Yes
32	to Front	to year	1,140,500,511	875 version	0.0033	No	2.54		4.24	No	>0.21	0.28	No	797 1185 54	211 6 1326 (NO		27	0	20	26	Yes
8 0	2347092544	in delete des	Magna Machen	Marie Sections	Strate de la constante	-3 March 5	Sal New	1 / 1 V V V	7500.00	200	52.3.55		1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	2000	न रहारी होता हुन	3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		لنتحتب	<i>کینچپ</i>		

TABLE 3

OPTICS CARRIAGE MOTORIZED TRANSPORT

OPTICS CARRIAGE MOTORIZED TRANSPORT

Tyansport Speed Set For Approximately 0.020 V Second

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TEST	PRECONDITION		TABLE	CARRIAGE				TE LEGIS	- 4/1	MEETS	E E	(1123)	MEETS	COLUMN 1	MEETS			EMEHIST		MEET.
1)0	DIRECTION	DIRECTION	ORIENTATION	POSITION	OPERATING		TIME T	O ATTAIN			TIME T	o STOP	REQ.	SPEED X TRAVEL EQUAL Y TRAN	EL REQ	NoT: TO: VI	IRY FROM.	PREVIOUS . TI	:are ±5%	REQ
No.	100 140,000	Letter Mar	16.40	1.374	SPEED	MED	1	ECONDS		SPEC 31	- SECO		SPEC 4 ?	WITHIN 10 % (Using an aver	ge SPEC 5 ?	TIMES	TIME	S EXCEED	ED 25%	SPEC 6
	180m R 400	14777	11, 1 - 16, 12	1000 0 000	in./sec.	MAR 2	MINIMUM	NOWINAL	MAXIMUM	(MIN-VILLE)	MINIMUM	NOMINAL	(MIN. VALUE	of the OPERATING SPEEDS)	9 July 1	POSSIBLE	MINIMUM	NoMINAL	MAXIMUM	(MIN.YK
33	1087	1087:	horizontal	Center X+Y	0-0211	· · · · · · · · · · · · · · · · · · ·	0.25	0.25	0.25	Yes	< 0.02	<.0.02	Yes	YMax Y speed (horiz) 0.0244	No	43	1.00	26	42	·Yes
34	1104+	yight.	The wife of	" Harry	0.0206	Bay to	0.96	0.96	2.50	Yes	<0.10	0:19	Yes	Min. X speed (horiz.) 0.0200		42	3	: 19	41	·No.
3.5	right	right	15年中国 <b>的</b> 科集社会	To most					/	DATA	NOT	USABL	E	** 16 percent difference *	*	7-11	n	_	. × .:	
36	right	1087	1月29日的第二	37.43	0.0206	A	0.27	0.44	0.44	Yes	< 0.02	< 0.02	Yes	\$1.18 B.16 B. # 21 \$1.90 B.	21 (4.45)	45.	. 2.	36	44	· No
37	1057	1047	+ilted	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	0.02.05	La Sala	0.08	0.26	.0.47	. Yes	>0.06	0.24	Y 0.5	( Max. Y speed (+ilted) 0.024	No.	S-412	. 0	23	40	Yes
. 38	ieft	right	14 CM 15 17	11	0.0204	Reserve	1.30	1.70	.5-00	No -	< 0.03	0.03	Yes.	min X speed (tilted) 0.020	14	33	0	16	31.	Xe s
. 39	right	right	[28] [M. 17] [3	\$ 5 mages	0.0206	SHILL IS	0.30	. 0.30	2.11	Yes	< 0.01	0.02	Yes	** 17 percent difference *	*	40	0	24	39	Tes
40	right	1087	· 5000000000000000000000000000000000000	11 11 11	0.0204		1.08	1.08	1-49	No	> 0-08	0.16	Yes	《明诗篇》(1871年) 1975年 1875年 1875	s. 14 a.d., 3	3/	0	16	30	Yes
4	to year	to year	horizonlal	· "我说,你	0.0237	图 图 图	0.30	0.30	0.30	Yes	< 0.02	40.02	ires	Particular String of the Period Pro-	1 20 30	41	٥	2.3	40	100
42	to YCAY	to Front	(g to 49%) A 10%		0.0244	100	0.74	10.96	3.08	Yes	< 0.02	0.02	Yes	医静脉结构体 "还多"的一点现代证	S 10,7 25	34	0	17	32	Yes
43	to Front	to Front	13-54-54-1	77.	0-0244	5. 11.	0.31	0.31	2.68	Yes	40.06	0.06	Yes	Self-region (17) de la production de la constantina del constantina del constantina de la constantina	a.	37	0	18	33	Ye
41	1 to Front	to Year	11/24/2014	1. 111 11	0.0236		1.75	2.47	3.20	No.	> 0.02	0.21	Yes	表記機能を呼ばれている。	Y	29	0	16	28	Ye
	to Year	to rear	tilted	11. 11. 11.	0-02-39		0-25	45.0	0.25	Yes	> 0 : 02	0.07	Yes	P. San Stranger and Stranger	See of Seesal	·		2.8	43	Ye
1		to Front	1 14 - 16 3 - 18	学 研查	10.0245	tion to	1.12	1.12	4.05	No	> 0 - 03	0.24	Yes	TENERAL PROPERTY	(R) 1.1.1	41	0	3010	40	Ye
	7 to Front.		( W. 1: W. 10 - 1	14.500	0.0246		0.26	0.26	2-03	Yes	70.02	0.23	Yes	Principal Laboratory	7 2 2	44	3	34	43	/ <u>-</u>
	6 to Front	+ + +22Y	1 (C.W. S. 15	J. STERMORY	0.0239		1-27	1.27	4.05	NO	>0.25	0.3/	No	WARREST NAME OF STREET	7 4 3 5 5	39	0	2.2	. 37 . 1	Yo
10.0	Daniel City Constant	64 PH 94 NOV	12 1 12 10 49 A POLITIC	1.394/24031997	Asia Washitana		14. 4. 47.3	20 4,570	Makedo	dates all	6 10 to 10 t	81450	Y. 4 . 18 . 12.	LOS MALENDES SE AMERICANA	1720170		STORY OF T			

TABLE 4: ——
OPTICS CARRIAGE MOTORIZED TRANSPORT

Fransport Speed set For Approximately 0.100 / Second

1	PRECONDITION			CARRIAGE	KM 32 14.		1. A	46.52	J	MEETS	11.33	Lan .	MEETS	x 35 30	and the same	e light to	MEETS		S - INCR			MEETS
10.	DIRECTION	DIRECTION	ORIENTATION	POSITION	OPERATING	Codes.	TIME TO	ATTAIN	SET SPEE	REQ	TIME T	o STOP	REQ.	SPEED .	TRAVEL E	QUAL Y YRAVEL	REQ.	NOT TO V	RKY FROM.	PREVIOUS N	MORE \$5%	REQ
VO.		14 14	-CENTED'S	Law Maria	SPEED		- 51	ECONDS	-1	SPEC 3?	- 5500	NDS -	SPEC 4.7	WITHIN	10% (0	sing an average	SPEC 5 ?	TIMES	TIME	S EXCEPT	DED \$5%	SPEC 6 ?
<u></u>			5 8 8 6 35 C 2 5 5		m./sec.		MINIMUM	NOMINAL	MUNIMUM	(MIN VALLE)	MINIMUM	NOM IN AL	(MIN VALUE)	of the	OPERATING	SPEEDS)		POSSIBLE	MINIMUM	NOMINAL	MAXIMUM	(MIN. YALU!
44	1cft	1087	horizontal	center X+Y	0.0879	<b>2</b>	0.09	0.26	3.25	Yes.	c 0.03	0.03	Yes	( Max. Y	speed (hori	2.) 0.1052	No.	45	0	2.5	. 44	Yes
. 50	1047	right	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	188 H	0.0281		0.78	0.96	· ,- ·	Yes	40.02	0.02	Yes	Min. X	speed (hor	12-> 0.0879	1 4 4	141	0	17	. 40 .	· Yes
. 51	right	right	11 11 11 11 11 11	5 3 5 6 W C.	0.0882		0.27	0.27	1	Yes.	20.03	0.03	Yes	**:16	percent d	FFERENCE ** X		42	0 .	15	41	Yes .
. 55	right	1014	1965 AND 1965 P	11 2	0.0884		0.61	0.79	5.65	Yes	40.02	40.02	Yes	4.49	1 11 11	edjorenski i i	4.7	41	3	2.1	40	No.
_ 53	1 1887	1047	+ilted	9 11	0.0890	10.4	0.26	0.26	0.26	Yes .	40.02	50.02	Yes	Max Y	speed (+ilt	ed) 0.1060	No	142		. 22	41	Yc:
54		right	12 Salt Car.	***!***32*** .	0.0884		0.60	0.78	2.07		>0.05			,		fer) 0.0884	1	-41	: 1 **	21	40	No
. 5.5		right	71.7	55457,00	0 - 0878		0.27	0.27	-	"Yes"	20.02	0.02	Yes			efcience **	1	43	0	- 14	41	Yes
56		1017	The market	वर्ष चार्यात.	0.0885	15.	0.62	0.62	2.59			< 0.03		11/2	S. K. They'r	48, 40, 40, \$		42	0	20	41	Yas
57	to rear	to Year	horizontal.	5.15%	0.0931		0.27	0.27	. 7.22	Yes	>0.02	0.05		5.70400	Effect F.	19809 11 19	1	45	1. 19 %	/13c	44	No
58	to Year	to Front	-47.07.11.75	1 10	0.1045		0.62	0.62	3.15		·	0.07	Yes	1997 B	STATE OF THE	THE PROPERTY.	1	42	0	2.3	1 41	Yes
59	to Front	to front	\$45,500 BUST	1.17 20 -	0-1052		0.27	0.27	2.13		>0.02		Yes	100	1 4 1a 3 1	14.4 7 1.15	1 193	43	0	24	42	Yes
. (,0	to Front	to rear	HISTORY Y	16 37 7	0.0943	(7)	29.0	0.62	1.50		< 0.02		Yes	41.44 (8.4	and their	1 14 Table 2 Table		43		. 25	1. 42	No
61	to Year	to rear	+ilted	18: W. S. S.	0.0934	1	0.25		0.75		70.03		Yes	2.64	Ty + 2, 1439	1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	45	0	24	44	Yes
62	+ o Year	to Front	14 Mars 17 18 17	49 77 -5	0.1056	10-1 4	0.44	0.44	0.99	Yes	> 0.02	<del></del>	Yes	<del></del>		1 948 W 1 1 2 1 1 1	1 74	44	1 3 1		43	No
63	to front	to Front	10 7 Gasy	38799733	0.1060	1	0.31	0.49	0.49	Yes		0.23	Yes		e de la lace	self a alian		43	0		. 42	Yo.
64	to front	to rear	\$ \$400 y 1, 600 h	-18 A-18	0.0935		0.44	1.15	4.03		> 0.02			32.000 Sec.	52 1 2 1 1 2	a August Accept	1	40	2	2.0	39	7.02
. (.g	34. 11.3194	124-141	BOTH HOLDE	HELEVILLE MAN	Roble Hubb	error store	اختسسا		, , , ,	. 63	1. 181		10 N 10 1 1 1 1 1	NA PERSON	estruet with	Williams or	200	1 70	1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-3/-	1

D DIRECTION DIRECTION ORIENTATION POSITION OPERATING REQ. TIME TO ATTAIN SET SPEED REQ. TIME TO STOP REQ. SPEED X TRAVEL EQUAL Y THAVEL REQ. HAT TO WARY FROM SECUL WHITE IS NOT THE SECUL WITHIN 10 % (Using an average SPEC ST TIMES TIMES EXCIPLIBLES WAS SPECTIVE.) 7 1/247 1/247 1/2474 1/24									0 PT 11	cs c	I BLL ARRIN X IMUV	OF N	rotor rsport	i≥ED Spee	TRANSI Settin	20 RT							
7						OPERATING SPEED	REQ.	TIME T	O ATTAIN ECONDS	SET SPEE	REQ. SPEC 3	TIME T	o stop Nos –	REQ.	SPEED X 7	RAVEL	EQUAL Y TRAVEL	RFQ.	NAT TO Y	ARY FROM	PREVIOUS	MORE \$5%	4
2 1cft   Yight   10 20 0 0 1 0 0 2933   Yes   0.46   0.65   Yes   70.05   0.07   Yes	51	1054	100+	A Street Street	The section of the section of					-					of the op	ERATIN	G SPEEDS)						
				No.AISONIA 1			-							4	10.00								Yes
Part	-12-	76.41	TISHT	3.53.007.8	200	0.2733	763	0.78	0.46	0.65	res	70.05	0.07	795	2010/04/2015			<del>  -</del> -	37	0	15	36	Yes
Part		1	-	100	1000000000			-	-		<u> </u>	1111111	1		27 10 37 37 3	100		<del>                                     </del>	-	1		+	+
		A hara and	41.753	N. P. Oleganick	7 3 3 3 3 3			7			1 1	787 2 3 3 2	20.00	1 100			The second second	++-			+	+	-
		THE TANK IN	100 50	1. 可以基础的 15.	1 11 1 1 1 1		33.71.71		-		10.70	11.3		1	950 Co. 12 to		3.	11111	1 2 2			-	+
		124,000 1100	1.30	33 PR 18 19	1.4	1 1 7	Ar .	- 17	10 170	-	213	3.45 (1.1	-	2000 7	V 1 N 3 F V 1	Maria e par Maria e para					-	+	+-
	-	25 6-197	J. 18 14 15 15 1	STATE TO BEST OF	1.159.19615	11111	11.00	11	22.5	1.15, 7	-	110,000	36:47		.ped 11 376.	. 12.,,,,	Same and the second	1 1	-		<del> </del>		<del> </del>
	- :	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	144 (144)	7 July 13	The section	46-5-5	14,59	7.9		1		Media:	194 34		9.873.183		7 8 8 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.7.11.1	1.79		120	+	1
Transfer   Market		11 11 11 11	1 4 4 7 7 .	2191-558	145.450		14 17	493		1.1		Service.	87.15	15 15	51800 B	Carlot,	D. Bergaring		1		f		$\vdash$
Transfer   Market		3.00	1371 4.	May Hall	a Alexandrea	1.1		3.	1	1	1.5	1. 1. 1.	#1 14	11.41	74 grag 3		11 12 14 14 14 15	1	1.16	178,63	<del> </del>	in:	+
		1.114	477.641		19 P 17 S	1 14 g/ kg.	1,51					14 50	₹1. E.	14177	13 ct-47	, which	1,500,000	10.00	1. 1. 1.		1	1	
1   1   1   1   1   1   1   1   1   1	- 1	1.4-6.79-16	A Palet	\$15 TO-16	* H. St. 1	1 - 23 -4 Teles			100			12.100	VP. F	114.5	1,40,5,000	risk je.	- 4.学家在36年9年	17a g				195	T .
는 도로를 다고 하게 되었다면 하면 이는 도로 환경이 되었다. 그는 그는 그는 그는 그는 그는 그는 그는 그를 하고 있다. 그는 그를 다고 하는 것이 되었다. 그는 그를 다고 하는 것이 그를 다고 하는 것이 그를 다고 있다.			28 (4.54)	Market Market	44.00	1.5, 4	24.4	1		1 4/4		- 机连锁	15.00		54, S. F.	1.0	ERRETURE :		11000	244	T		1
	- :	September 1	15.55	* * * * * * * * * * * * * * * * * * *	1917	14 1 1 1 1 1 1 1 1 1	274-9473	. 41.77	1.3	1.5	52.5	일반 대한	Print 1 s	7.13	S. L. (30, 42)	10419			10000	5.5	1	1. 1 1. 1	

TRANSMIT	TAL SLIP	28 MG	nv 73
TO: REL	Ď		
ROOM NO.	BUILDING		
REMARKS:			
			i
FROM:	EB/ES	D	
ROOM NO.	BUILDING		EXTENSION
FORM NO .241	REPLACES FORM 36 WHICH MAY BE US		(47)

25X1